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DLR – DAAD Fellowships

Fellowship No. 637

Research Area :	Energy
Research Topic:	Electrochemical reduction of CO₂
DLR Institute:	Engineering Thermodynamics, DLR Stuttgart, Germany
Position:	Postdoctoral Fellow
Openings:	1
Job Specification:	<p>Optimization of the Membrane electrode assembly and developing the cathode electrode for the reduction of CO₂</p> <p>At DLR's Electrochemical Energy Technology department, we are a team of around 80 dedicated employees researching a broad spectrum of technologies for future energy scenarios. This includes, but is not limited to, fuel cells, high-temperature electrolysis, and batteries. In the green deal project called ECO2Fuel our work focuses on the direct conversion of CO₂ via a single step electrochemical reduction into higher-value products such as ethylene or ethanol. This method promises a future of reduced dependence on fossil fuels and a significant contribution to combating climate change.</p> <p>In our group we delve into the fundamental relationships between catalyst/electrode properties and their electrochemical performance in CO₂ reduction. Key parameters here are activity, selectivity, and stability. The department utilizes various techniques to produce and test membrane-electrode assemblies, both in-house and with project partners. The focus is on the physical and electrochemical characterization of these assemblies, with testing conducted under realistic conditions using our single-cell experimental test rig.</p> <p>We are seeking a passionate and motivated post-doctoral researcher to join our team. Your role will include:</p> <ul style="list-style-type: none">- Production and synthesis of membrane-electrode assemblies and nanoparticulate catalyst concepts.- Electrochemical and physical characterization of materials.

- Optimizing and operating the single-cell test rig with downstream analytics.
- Documenting, evaluating, and publishing research findings.

Additionally, your work will contribute to understanding and enhancing the efficiency of electrochemical systems, particularly in CO₂ reduction. This involves addressing challenges like electrolyte flooding mitigation, suppression of the hydrogen evolution reaction (HER), and optimization of the catalyst layer. You will be instrumental in developing protocols for testing and analyzing both liquid and gaseous products produced during reactions, and in situ Raman spectroscopy will be used to gain insights into the intermediates formed.

If you are passionate about advancing electrochemical systems and meet the qualifications, we would be delighted to receive your application.

Required Qualification:

- PhD in electrochemistry.
- Strong knowledge in process engineering and chemical engineering.
- Ability to work independently and collaboratively in a team environment.
- Creativity and independent thinking.
- Excellent written and verbal communication skills.

Advantageous Skills: Surface analysis methods such as SEM, TEM, Raman spectroscopy

English competence: See requirements on www.daad.de/dlr

Earliest Start Date: 01.02.2024

Application Deadline: Until the position is filled

Further Information: <http://www.dlr.de>
<http://www.daad.de/dlr>

More information may be obtained by contacting:
Faria Huq (huq.faria@dlr.de)

Thank you for your attention!
We look forward to receiving your application!